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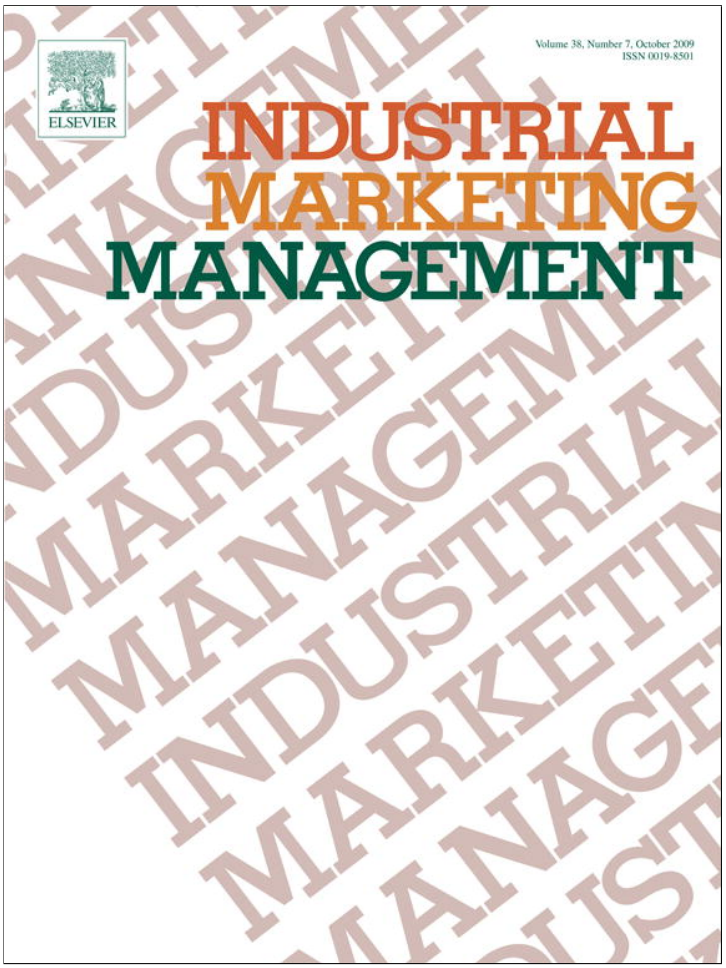

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Explaining alliance success: Competences, resources, relational factors, and resource-advantage theory

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ABSTRACT

Business alliances, by filling critical resource gaps, enable firms to have positional advantages that lead to superior financial performance. Some alliances, however, are more successful than others. The three prominent theoretical approaches to explaining alliance success rely on resources, competences, and relational factors. The authors theorize that the three approaches are interdependent and, using resource-advantage (R-A) theory as a framework, develop an integrative model. This model proposes that the three approaches are linked by means of relationships among (1) alliance competence, (2) complementary resources, (3) idiosyncratic resources, and (4) cooperation. A test of the model, using a sample of alliance professionals, finds support for the theory that the three approaches are, indeed, interdependent and that resources, construed in the manner of R-A theory, influence alliance success through positional advantage.

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1. Introduction

When two giant aircraft manufacturers, Boeing and Lockheed-Martin, competed for the largest military contract in United States history, the joint strike fighter project, industry analysts predicted that Boeing would receive the contract. Why? Because of its strong reputation with Pentagon decision-makers, tremendous financial resources, and proven ability to deliver complex products. Nonetheless, Lockheed-Martin secured the contract. Again, why? It appears that the key success factor was Lockheed-Martin's ability to develop a three-way alliance with two, long-time competitors, BAE Systems and Northrop Grumman (Breen, 2002). Many firms are following strategies similar to that of Lockheed-Martin. That is, they increasingly make use of alliances to fill critical resources gaps and gain positions of competitive advantage in the marketplace (Day, 1995; Lambe, Spekman, & Hunt, 2002; Sivadas & Dwyer, 2000). For example, studies estimate that large firms, those with $2 billion or more in revenues, developed an average of 138 alliances between 1996 and 1999. In 2000 alone, firms formed over 10,000 alliances (Schifrin, 2001a,b). A majority of executives believe alliances represent a prime vehicle for future growth, and alliances are expected to account for an increasing percentage of company value in the future (Kalmbach & Roussel, 1999). Despite the prevalence of alliances, estimates are that up to 70% are unsuccessful (Day, 1995). These statistics suggest that, though managers understand that alliances represent an important component of strategy, they have difficulty identifying the factors that lead to alliance success.

Following Lambe et al. (2002, p. 141), we define business alliances as "collaborative efforts between two or more firms in which the firms pool their resources in an effort to achieve mutually compatible goals that they could not achieve easily alone." Three theoretical approaches purport to explain alliance success: (1) the resource-based view (Barney, 1991; Connor, 1991; Jap, 1999; Morrow, Sirmon, Hitt, & Holcomb, 2007; Park, Mezias, & Song, 2004; Wernerfelt, 1984), (2) the competence-based view (Hamel & Prahalad, 1994a,b; Heimeriks & Duysters 2007; Lado, Boyd, & Wright, 1992; Prahalad & Hamel, 1990; Sanchez & Heene, 2000; Schoenmakers & Duysters, 2006), and (3) the relational factors view (Anderson & Narus, 1998; Dwyer, Schurr, & Oh, 1987; Moorman, Zaltman, & Deshpandé, 1992; Morgan & Hunt, 1994; Muthusamy & White 2007; Muthusamy, White, & Carr, 2007; Nielsen 2005; Wilson, 1995). How should the three explanations be interpreted? One possibility is that they are rivals in the sense that one could be correct and the others false. However, the "rivals thesis" seems unlikely because all three explanations do explain some variance in alliance success. A second possibility is that each view has explanatory factors that are *independent* of key variables in the others. Therefore, if the three approaches were combined in a single model (as, for example, in a stepwise regression), each of the major variables in each of the three explanations should increase the variance explained in alliance success. A third possibility is that the three are *interdependent*, with one or more of the key factors in the three approaches influencing or reinforcing explanatory variables in the

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others. Therefore, if the three explanations were combined in a single model (as in a causal model), the *integrative* model should not only explain more of the variance in alliance success, but also the paths in the model that link the three approaches should be significant.

We theorize that the three explanations of alliance success are interdependent and we develop and test an integrative model that shows how the resource-based, competence-based, and relational approaches to alliance success are linked. Our article is structured as follows. First, we review the resource, competence, and relational approaches. For each, we identify the factors theorized to contribute to alliance success. Second, using concepts from all three approaches, we develop an integrative model of alliance success (see Fig. 1). The model uses resource-advantage (R-A) theory as a unifying framework because this theory provides a theoretical grounding for strategies based on resources, competences, and relationships (Hunt & Derozier, 2004; Hunt & Morgan, 1995). Third, we test the integrative model using data from business alliance professionals. Fourth, we compare the hypothesized model to (1) sub-models based on each of the three extant explanations and (2) a rival, integrative model developed by Hunt, Lambe, and Wittmann (2002).

2. Three explanations of alliance success

2.1. The resource-based approach

The resource-based view traces to the work of Penrose (1959) and is developed in the seminal articles of Barney (1991), Connor (1991), and Wernerfelt (1984). Resource-based theory emphasizes the importance of firm resources, which are defined as "any tangible or intangible entity available to the firm that enables it to produce efficiently and/or effectively a market offering that has value for some market segment(s)" (Hunt & Morgan, 1995, p. 11). The fundamental thesis of the resource-based view is that, because resources are significantly heterogeneous across firms, each firm's resource set is in some ways unique. Furthermore, because some resources are not easily bought, sold, and/or traded in the marketplace (i.e., they are imperfectly mobile), resource heterogeneity among rivals can (1) persist over time and (2) explain performance diversity (Das & Teng, 2000; Dierickx & Cool, 1989).

Firms have a variety of ways in which to gain access to resources, including (1) developing them (either unilaterally or with the help of other firms), (2) acquiring them (e.g., through mergers and acquisitions), and (3) gaining access to them (e.g., through business alliances and partnerships) (Hunt, 2000; Morrow et al., 2007). As to business alliances, resource-based researchers maintain that alliance success is influenced significantly by (1) the resources that each partner contributes to an alliance and (2) the extent to which the alliance creates new resources (Das & Teng, 2000; Jap, 1999; Park et al., 2004). In short, alliance strategy "is about creating the most value out of one's existing resources and by combining these with others' resources" (Das & Teng, 2000, p. 36). However, it is rare that all of a partner's resources are essential for superior alliance performance. The resources of alliance partners may be "overlapping" (i.e., common to both partners) or "nonoverlapping" (i.e., unique to a given partner) (Das & Teng, 2000).

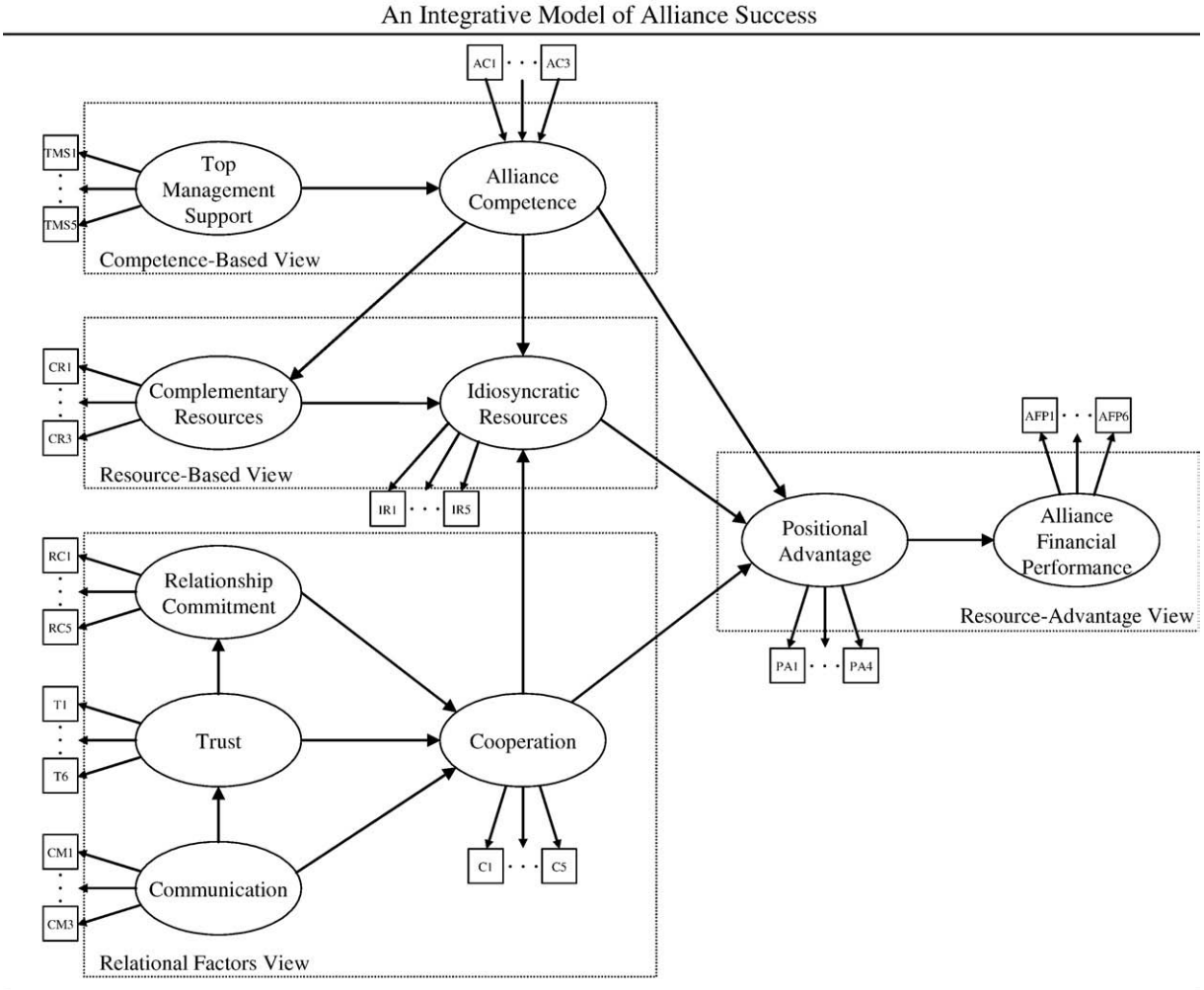

Fig. 1. An integrative model of alliance success.

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Overlapping resources can be either useful to an alliance ("supplementary" resources) or not useful ("surplus"). Similarly, nonoverlapping resources can be either useful to an alliance ("complementary" resources) or not useful ("wasteful"). Although supplementary resources benefit alliances, research suggests that complementary resources are especially important to alliance success (Sarkar, Echambadi, Çavuşgil, & Aulakh, 2001). For example, Jap (1999) suggests that partners with complementary resources are compelled to overlook difficulties and focus on strategic outcomes because they recognize that they can produce outcomes together that are superior to those that either firm could produce singly.

In addition to the resources that partners bring to an alliance, some alliances also develop new resources. These "idiosyncratic" resources are: (1) developed during the life of an alliance, (2) created by combining the respective resources of partners, and (3) unique to the alliance (Jap, 1999). Following the resource-based view, Das and Teng (2000, p. 49) suggest that when alliance partners integrate resources (i.e., develop idiosyncratic resources), a synergistic effect can occur, which creates "more value in the integrated condition than the sum of the separate values of the resources with individual firms." Empirical research finds that idiosyncratic resources are prominent in alliance success (Lambe et al., 2002).

2.2. The competence approach

A competence is "an ability to sustain the coordinated deployment of assets in a way that helps a firm to achieve its goals" (Sanchez, Heene, & Thomas, 1996, p. 8). Because competences enable firms to use their resources efficiently and/or effectively, competences are a logical extension of the resource-based view (Lado et al., 1992). Because competences are tacit, complex, and firm-specific, they can be sources of competitive advantage (Reed & DeFillipi, 1990). Because competences are "difficult to accurately describe and are deeply rooted in action, commitment, and involvement in a specific context" (Nonaka, 1994, p. 16), they are "learned by doing" (Polanyi, 1966). Also, because competences involve complex interrelationships among the skills of many individuals, they "are deeply embedded within the fabric of the organization" (Day, 1994, p. 38).

Due to their importance in delineating the strategic focus of the firm, competence theorists emphasize the importance of *managerial* competences, that is, those that enable managers to create, communicate, and empower their employees to realize their organizations' strategic visions (Hambrick & Mason, 1984). For Lado, Boyd, and Wright (1992, p. 83), "the contention that strategy and performance are ultimately a reflection of top managers or the dominant coalition underscores the importance of managerial competences as a source of sustainable competitive advantage." In addition, they emphasize that managerial competences are crucial because they enable firms to develop *other* competences.

As to business alliances, competence researchers suggest that alliance success is influenced significantly by a firm's ability to develop an *alliance* competence, which is defined as "an organizational ability for finding, developing, and managing alliances" (Lambe et al., 2002, p. 145). To improve alliance success, firms must identify and integrate resources that allow the identification, development, and management of alliances (Heimeriks & Duysters, 2007). Because knowledge management is central to alliance competence development and maintenance, Kale, Dyer, and Singh (2002) urge firms to collect and disseminate alliance "know-how," which often consists of tacit knowledge that (1) resides within the individuals involved in alliance management and (2) is based considerably on a firm's alliance history. Firms that can find ways to facilitate the dissemination of individual-based knowledge (both within and between alliance partners) will be more successful at forming and maintaining alliances. For example, Simonin (1997) finds that successful alliances result from managers' learning how to collaborate with partners to share knowledge. Thus, developing an alliance competence requires knowledge accessibility, facilitative mechanisms, and effective knowledge leveraging (Heimeriks & Duysters, 2007; Schoenmakers & Duysters 2006; Spekman, Isabella, & MacAvoy, 2000).

2.3. The relational factors approach

The relational factors view distinguishes between discrete and relational exchanges (Macneil, 1980). The former have a definite beginning, a definite end, a short duration, and involve anonymous parties, while the latter involve a series of exchanges over a long (or indefinite) period of time, with parties that know each other (Dwyer et al., 1987). The relational factors view suggests that successful relational exchanges result from certain characteristics of the relationship (Mehta, Larsen, Rosenbloom, & Ganitsky, 2006), including trust (Sivadas & Dwyer, 2000; Smith & Barclay, 1997; Weitz & Bradford, 1999), commitment (Anderson & Weitz, 1992; Moorman et al., 1992), cooperation (Anderson & Narus, 1990; Morgan & Hunt, 1994), and communication (Mohr & Nevin, 1990; Mohr, Fisher, & Nevin, 1996).

As to business alliances, theorists posit that many factors associated with successful relational *exchanges* are also important building blocks for alliance success, including trust, relationship commitment, communication, and cooperation (Muthusamy et al., 2007; Robson, Spyropoulou, & Al-Khalifa, 2006). Trust and relationship commitment "are the *sine qua non* of alliances for without trust and commitment, there can be no alliance" (Spekman et al., 2000, p. 43). Furthermore, alliances are based on the thesis that firms must often "cooperate to compete" (Morgan & Hunt, 1994). Alliances characterized by effective communication generate interfirm trust, which promotes cooperation (Sarkar et al., 2001). Effective cooperation, in turn, allows alliance partners to combine successfully their resources in ways that contribute to the development of competitive advantages (Madhok & Tallman, 1998). Thus, the relational view suggests that alliances characterized by trust, commitment, communication, and cooperation are more successful than those that are not.

3. Integrating the three explanations of alliance success

3.1. Overview

We theorize that the three explanations of alliance success are interdependent and propose the integrative model shown in Fig. 1. Although the three views are often used separately, it is not the case that they are irreconcilable. Indeed, the three views complement each other (Hunt et al., 2002). First, the resource-based view emphasizes the ability of alliance resources (e.g., complementary and idiosyncratic resources) to influence alliance success. Second, because business alliances enable partners to gain access to each other's resources, but not control them, a governance structure is needed to facilitate the sharing of resources (Morrow et al., 2007). The relational factors view, by explicating the mechanisms needed to enhance the development and maintenance of interfirm relationships, provides such a governance strategy (i.e., cooperative relationships) that enables firms to share resources more easily and efficiently. Third, the competence-based view provides an explanation of how resources are coordinated and deployed. Therefore, the three views together provide a more complete picture of how resources necessary for alliance success are identified, developed, and deployed. Also, a strong case for the integration of the three views is that the integrative model can be grounded in extant competition theory. Specifically, R-A theory (Hunt, 2000; Hunt & Morgan, 1995) provides an overall framework to integrate the three approaches to alliance success.

At its core, R-A theory combines (and extends) heterogeneous demand theory (Alderson, 1957) with a resource-based theory of the firm. As Hunt (2002, p. 277) states R-A theory views firms as

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"combiners of heterogeneous and imperfectly mobile resources—which is the fundamental tenet of the resource-based view (Connor, 1991)." R-A theory rejects the notion of some resource-based theorists that competition is equilibrium-seeking. Rather, for R-A theory, competition is the constant struggle among firms for comparative advantages in resources that will yield marketplace positions of competitive advantage for some market segment(s) and, thereby, superior financial performance. An advantage of using R-A theory as a guide is that, instead of using "competitive advantage" generically to encompass all kinds of firm advantages, the theory distinguishes sharply the *positional* advantages of market offerings from the comparative advantages of the resources that *lead* to such advantages (and, ultimately, to superior financial performance). Furthermore, R-A theory demarcates sharply an *efficiency* positional advantage from an *effectiveness* positional advantage (Hunt & Morgan, 1995).[3]

Resources, for R-A theory, are seven in kind: financial, physical, legal, human, organizational, informational, and *relational*. As to alliances, an alliance *resource* consists of any tangible or intangible entity available to the parties that enables the alliance to produce efficiently and/or effectively a market offering that has value for some market segment(s). Indeed, an alliance, itself, can be a relational resource when it produces cooperation among the partners. For R-A theory, a competence is a higher order resource that consists of socially complex, interconnected, combinations of tangible basic resources (e.g., specific machinery) and intangible basic resources (e.g., specific organizational policies and the skills and knowledge of specific employees). Because these basic resources must fit coherently together in a synergistic manner to be effective, an alliance competence can play a major role in alliance success (Hunt & Arnett, 2003). Therefore, R-A theory provides a general framework for integrating the resource, competence, and relational factors explanations of alliance success.

The integrative model of alliance success in Fig. 1 follows R-A theory by positing that alliance success results from the positional advantages brought about by the alliance. In turn, the positional advantages are produced by three *types* of resources: (1) alliance competences, (2) idiosyncratic (alliance-created) resources, and (3) cooperation. We now discuss the theoretical justification for each path in the model.

3.2. Alliance competence and top management support

Competences are kinds of *higher order* resources (i.e., they represent combinations of tangible resources and intangible resources) (Hunt, 2000). As such, competences that enable firms to successfully identify, develop, and manage alliances are important. Specifically, Lambe et al. (2002) argue that an alliance competence is critical to alliance success. An alliance competence is formed from three facets (or "basic" resources): alliance experience-based knowledge, alliance manager development capability, and partner identification propensity (Lambe et al., 2002). As to the first facet, Kale, Dyer, and Singh (2002) maintain that alliance experience is one of the most important determinants of alliance success, while Day (1995, p. 299) suggests that a "deep base of experience" with alliances gives firms an edge over their competitors because partners learn from both their successes and failures. Heimeriks and Duysters (2007, p. 30) maintain that such learning is important because it "can increase a firm's ability to perform repeatable patterns of action." As to the second facet, firms that consistently succeed at developing alliances have the ability to develop capable alliance managers who manage alliances in ways that (1) minimize conflict, (2) allow partners to use complementary resources, and (3) create idiosyncratic resources that lead to competitive advantage (Lambe et al., 2002). As to the third facet, firms must develop a capability for alliance partner selection, that is, an ability to identify those partners who can contribute to fulfilling their objectives (Spekman et al., 2000). Firms that have capabilities that enable them to identify, consummate, and manage alliances are more likely to form partnerships with candidates that best meet their needs (Varadarajan & Cunningham, 1995).

Because senior management influences strongly the types of managerial competences that a firm develops, firms are more likely to develop the three facets that form alliance competences when senior management is committed to using alliances (Sivadas & Dwyer, 2000). As Lambe et al. (2002, p. 147) maintain, "because the strategic direction of organizations is driven by senior management, competences are developed or maintained only under the urging of senior management." Indeed, to be successful at forming and/or maintaining alliances, firms must sustain high levels of commitment to ongoing alliances (Day, 1995). Therefore:

H_1. Top management support is related positively to alliance competence.

3.3. Complementary and idiosyncratic resources

Complementary resources, those that enable firms to "fill out or complete each other's performance by supplying distinct capabilities, knowledge, and resources" (Jap, 1999, p. 465), are important because they allow each partner to focus on the areas in which it can make the greatest contribution, and because they enable firms to combine resources in a manner that facilitates greater benefits (Dyer & Singh, 1998). Indeed, one of the commonly cited motives for forming alliances is to gain access to complementary resources (Park et al., 2004; Varadarajan & Cunningham, 1995). For example, a buyer and a seller may initiate a relationship because (1) the buyer gains access to new products that its customers desire and (2) the seller gains access to previously untapped markets. For Jap (1999, p. 465), complementary resources "are essential to successful collaborations because they supply critical capabilities, such that the two parties together can produce outcomes that would not have been attainable in the absence of the other firm."

Firms often do more than simply pool resources. At times, the alliance results in creation of new resources that may have little or no value outside the partnership (Anderson & Weitz, 1992; Jap, 1999). These "idiosyncratic" resources may be tangible, such as a joint manufacturing facility, or intangible, such as developing a highly efficient process for working together" (Lambe et al., 2002, p. 143). The process of idiosyncratic resource development is sometimes referred to as joint adaptation (e.g., the co-designing of new market offerings and cooperative marketing research) (Narus & Anderson, 1995). Idiosyncratic resources are important because they represent organizational learning, which is often an important source of competitive advantage (Harrison, Hitt, Hoskisson, & Ireland, 2001; Wilson, 1995).

Complementary resources enhance the process of developing idiosyncratic resources because they encourage firms to focus on strategic outcomes that will increase the likelihood of positive outcomes for both partners (Jap, 1999). Harrison et al. (2001) argue that complementary resources allow firms to create valuable resource bundles that are unique and difficult to imitate. Jap's (1999) study of the buyer–seller collaboration process finds that partners are more likely to make idiosyncratic investments when complementary capabilities exist. Lambe et al. (2002) find that the complementarity of alliance partners' resource sets influences directly the development of idiosyncratic resources. Therefore:

H_2. Complementary resources are related positively to idiosyncratic resources.

[3] Hunt and Morgan (1995, p. 7) introduce the competitive position matrix to explicate R-A theory. The matrix delineates explicitly an *efficiency* positional advantage (moving upward in the matrix) from an *effectiveness* positional advantage (moving rightward in the matrix).

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3.4. Cooperation and relational factors

Cooperation, defined as "the extent to which exchange partners undertake voluntary coordinated action and jointly strive to achieve individual and mutual goals" (Smith & Barclay, 1999, p. 23), enables alliance partners to compete effectively. Three factors influence significantly interfirm cooperation: relationship commitment, trust, and communication (Anderson & Narus, 1998; Crespin-Mazet & Ghauri, 2007; Leonidou, Barnes, & Talias, 2006; Morgan & Hunt, 1994). Relationship commitment, defined as "an enduring desire to maintain a valued relationship" (Moorman et al., 1992, p. 316), is often considered to be the foundation of all successful, long-term relationships (Gundlach, Achrol, & Mentzer, 1995). Commitment not only provides a solid base from which additional characteristics important to the development of relationships can be built upon (e.g., social norms), but a "partner committed to the relationship will cooperate with another member because of a desire to make the relationship work" (Morgan & Hunt, 1994, p. 26). As Lancaster and Lages (2006) suggest, committed partners see cooperation as a means to build, maintain, strengthen, and deepen relationships. Therefore:

H_3. Relationship commitment is related positively to cooperation.

Trust, defined as existing "when one party has confidence in an exchange partner's reliability and integrity" (Morgan & Hunt, 1994, p. 23), constitutes a key factor in successful relationships because interfirm trust provides a basis for future collaborations (Dwyer et al., 1987). Indeed, relationships that lack trust are difficult to maintain (Duncan & Moriarty, 1998). Trust is important in relationships involving sellers (Smith & Barclay, 1997), suppliers (Spekman, 1988), buyers and sellers (Schurr & Ozanne, 1985), and channels (Anderson, Lodish, & Weitz, 1987). In the case of alliances, "trustworthy behaviors of a partner are a precondition for an enriched, meaningful, and continued exchange of knowledge between alliance managers" (Muthusamy et al., 2007, p. 57). The underlying premise in all these studies is that, when firms trust exchange partners, they are more willing to cooperate. In alliances, trust increases the scope of planning and action between partners (Gassenheimer, Houston, & Manolis, 2004; Muthusamy et al., 2007). As Anderson and Narus (1990, p. 45) emphasize, "Once trust is established, firms learn that coordinated, joint efforts will lead to outcomes that exceed what the firm would achieve if it acted solely in its own best interests." Research suggests that trust increase both cooperation and relationship commitment (e.g., Morgan & Hunt, 1994; Lancaster & Lages, 2006). Therefore:

H_4. Trust is related positively to cooperation.

H_5. Trust is related positively to relationship commitment.

Alliance success also relies on effective communication (Kiessling & Harvey, 2004), which is defined as the "formal as well as informal sharing of meaningful and timely information between firms" (Anderson & Narus, 1990, p. 44). Described as the "glue" that holds relationships together (Mohr & Nevin, 1990), communication has been found to increase the level of trust between partners (Anderson & Narus, 1984, 1990; Anderson & Weitz, 1989, 1992; Lancaster & Lages, 2006; Moorman, Deshpandé, & Zaltman, 1993; Morgan & Hunt, 1994). In general, communication helps build trust by providing partners with a mechanism for resolving disputes, aligning expectations and perceptions, and developing strategies. That is, it allows firms to *cooperate* more readily. Therefore:

H_6. Communication is related positively to trust.

H_7. Communication is related positively to cooperation.

3.5. Alliance competence, complementary resources, and idiosyncratic resources

For R-A theory, *firms* compete by combining their resources in ways that enable them to increase firm efficiency and/or effectiveness (Hunt, 2000). Similarly, we posit that the resources of alliance *partners* do not work independently. Rather, resources committed to the alliance should work together in a synergistic manner to complement and/or supplement each other. Therefore, Fig. 1 proposes that alliance competence, complementary resources, idiosyncratic resources, and cooperation are *linked*.

Firms with an alliance competence should be better at identifying potential partners with key complementary resources. As Lambe et al. (2002, p. 146; italics in original) maintain, "the partner identification facet of alliance competence implies a 'proactiveness,' which provides firms with an *informational advantage* that helps them gain access to complementary resources in situations where there is a scarcity of potential alliance partners." The experience-based knowledge possessed by firms that have an alliance competence enables them to manage alliance resources more readily because "firms with higher levels of experience in alliance management may have a more precise view of the kinds of partner/resource combinations that allow them to generate supernormal returns" (Dyer & Singh, 1998, p. 667). As a result, an alliance competence allows firms to combine and synthesize complementary resources over time to create idiosyncratic resources (Heimeriks & Duysters, 2007; Jap, 1999). Indeed, Lambe et al. (2002) find that alliance competence affects directly the formation of idiosyncratic resources. Therefore:

H_8. Alliance competence is related positively to complementary resources.

H_9. Alliance competence is related positively to idiosyncratic resources.

The complex process of forming idiosyncratic resources requires coordinated exchanges of information, support services, technologies, and ideas (Narus & Anderson, 1995). Therefore, interfirm cooperation, by enabling firms to work together to achieve both mutual and independent goals, is essential (Cannon & Perreault, 1999; Wong, Tjosvold, & Zhang, 2005). Indeed, interfirm cooperation constitutes one of the major ways alliances acquire new knowledge (Cegarra-Navarro 2005). Jap's (1999, p. 464) investigation of buyer–seller alliances finds that "coordination efforts with the dyad may be manifested in the formation of joint projects tailored to the dyad's needs and in an ongoing effort to exploit existing synergies and idiosyncratic opportunities between the firms." Therefore:

H_{10}. Cooperation is related positively to idiosyncratic resources.

3.6. Sources of positional advantage

Successful alliances must provide partners with positional advantages over rivals (Varadarajan & Cunnigham, 1995). In general, firms can occupy marketplace positions of competitive advantage when they have an efficiency advantage and/or an effectiveness advantage. Firms achieve an *efficiency* advantage by providing customers the same or similar relative value (as competitors) at a lower cost (than competitors). An *effectiveness* advantage is attained when firms provide customers with more relative value (than competitors) at the same or similar relative cost (as competitors). The optimal advantage is an efficiency/effectiveness advantage that is reached by providing customers with more relative value at a lower relative cost. These positional advantages result from firms' comparative advantages in resources, that is, "when firms have a comparative advantage (or disadvantage) in resources, they will occupy marketplace positions of competitive advantage (or disadvantage)" (Hunt, 2000, p. 138).

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Some resources are more important than others for developing and sustaining competitive advantages. Specifically, resources will lead to (more) sustainable competitive advantages when they: (1) cannot be imitated easily, (2) are difficult to substitute for, (3) are not easily traded among firms, and (4) are difficult for competitors to surpass through innovation (Hunt, 2000). Resources that meet these criteria include ones that are (1) causally ambiguous, (2) socially and technologically complex, and (3) require time to develop (Barney, 1991). For example, in the previously mentioned JSF alliance, Lockheed-Martin, BAE Systems, and Northrop Grumman combine complicated technologies related to aircraft design and manufacturing, stealth technologies, and vertical takeoff/landing. These resource combinations allow the alliance members to gain a positional advantage in the marketplace. Fig. 1 proposes that alliance competence, idiosyncratic resources, and a cooperative relationship among partners meet all these criteria.

First, an alliance competence is a complex, higher order resource (Heimeriks & Duysters, 2007; Lambe et al., 2002). The development of an alliance competence represents a learning process that occurs over time and results in both tacit and explicit knowledge. Whereas, tacit knowledge results from "learning by doing" and may not be imitated easily by rivals, explicit knowledge results from the lessons learned in developing and managing alliances and is incorporated in alliance manager training, alliance policies, and alliance processes (Schoenmakers & Duysters, 2006). This unique combination of tacit and explicit knowledge is often firm-specific and, therefore, serves as an informational resource with a high propensity for sustained advantage. Therefore:

H_{11}. Alliance competence is related positively to positional advantage.

Second, idiosyncratic resources created in an alliance are unique to the alliance and may have little value outside it. Replicating such resources by rivals is difficult because idiosyncratic resources are unique combinations of allied firms' resources. That is, because individual firms have heterogeneous resources, *combinations* of such resources often exhibit causal ambiguity and complexity. Therefore, they may require significantly more time to duplicate or surpass through innovation than the basic resources held by individual firms. Idiosyncratic resources "allow alliances to extract the competitive advantage *potential* from the combination of the partner firms' respective resources," and "since they are unique to the alliance and are constantly evolving, help alliances maintain the durability and inimitability of their resource advantage" (Lambe et al., 2002, p. 144). Therefore:

H_{12}. Idiosyncratic resources are related positively to positional advantage.

Third, though cooperation is often *assumed* to exist in alliances, it is "not automatic" (Parkhe, 1993). Cooperation allows firms to reach common and specific goals in alliances (Varadarajan & Cunningham, 1995) and achieve more together than apart (Anderson & Narus, 1990). Indeed, because a cooperative relationship may take significant time to develop, cooperation is "an important benefit that enables the dyad to compete more effectively against other competing dyads" (Jap, 1999, p. 466). In contrast, low levels of cooperation often result in alliance failure (Das & Teng, 1998). The cooperation resulting from alliances enables partners to conserve resources and gain market power (Eisenhardt & Schoonhoven, 1996). In summary, cooperation implies more than simply coordinating activities. Cooperation is a crucial element that enables alliance partners to work together to both reduce costs (i.e., be more efficient) and create more value (i.e., be more effective) in serving customers, which results in a greater likelihood of attaining efficiency and effectiveness positional advantages (Hunt, 2000; Madhok & Tallman, 1998). Therefore:

H_{13}. Cooperation is related positively to positional advantage.

3.7. Positional advantage and alliance success

Since the prescient work of Alderson (1957) on "differential advantage" theory, strategy theorists have argued that it is different kinds of competitive advantages held by firms that result in some firms being more profitable than others (Barney, 1991; Bharadwaj, Varadarajan, & Fahy, 1993; Day & Wensley, 1988) R-A theory takes the generic concept of "competitive advantage" and demarcates the positional advantages of firms' offerings in the marketplace from the comparative advantages of firm resources that lead to such positional advantages (Hunt & Morgan, 1995). In the case of alliances, positional advantages mediate the relationship between alliance-derived resources and alliance financial performance. Therefore:

H_{14}. Positional advantage is related positively to alliance financial performance.

As shown in Fig. 1, the resource-based, competence, and relational factors views of alliance success may be interpreted as sub-models. Our integrative model, by means of the paths (1) from alliance competence to complementary resources and idiosyncratic resources and (2) from cooperation to idiosyncratic resources, posits how the three sub-models are interlinked (see H_8, H_9, and H_{10}). Furthermore, by means of the paths from alliance competence, idiosyncratic resources, and cooperation to positional advantage (see H_{11}, H_{12}, and H_{13}), our integrative model, relative to the three sub-models, implies increased variance explained. Therefore:

H_{15}. The integrative model explains more variance in positional advantage than any of the three sub-models, taken alone.

4. A rival integrative model

Following Bollen and Long (1992), we compare our model with a theory-based rival (see Fig. 2). Although R-A theory maintains that positional advantages mediate the relationships between alliance-derived resources and alliance financial performance, other explanations suggest that alliance-derived resources influence alliance financial performance directly (Heimeriks & Duysters, 2007; Jap, 1999: Lambe et al., 2002). Therefore, we test a rival model suggested by Hunt et al. (2002), in which alliance-derived resources (i.e., alliance competence, idiosyncratic resources, and cooperation) influence alliance financial performance directly, as well as indirectly through positional advantage.

5. Method

We test the model in Fig. 1 using data from alliance professionals. The data are analyzed using partial least square (PLS) analysis (Wold, 1980), which is a nonparametric structural equation modeling technique that: (1) does not suffer from the indeterminacy problems associated with other causal modeling techniques, (2) is a nonparametric technique and, therefore, does not assume normality of the data, (3) often allows researchers to work with more complex models than other causal modeling techniques, (4) can be used to estimate fully models that use both formative and reflective indicators, and (5) accommodates smaller sample sizes than other structural equation modeling techniques (e.g., covariance structural analysis, using programs such as LISREL and EQS) (Arnett, Laverie, & Meiers, 2003; Chin, 1998).

5.1. Measures

The study uses multi-item scales for all constructs, with each item measured using a 7-point scale (*strongly disagree* to *strongly agree*) (see Appendix A). The scales for the competence-based view constructs are

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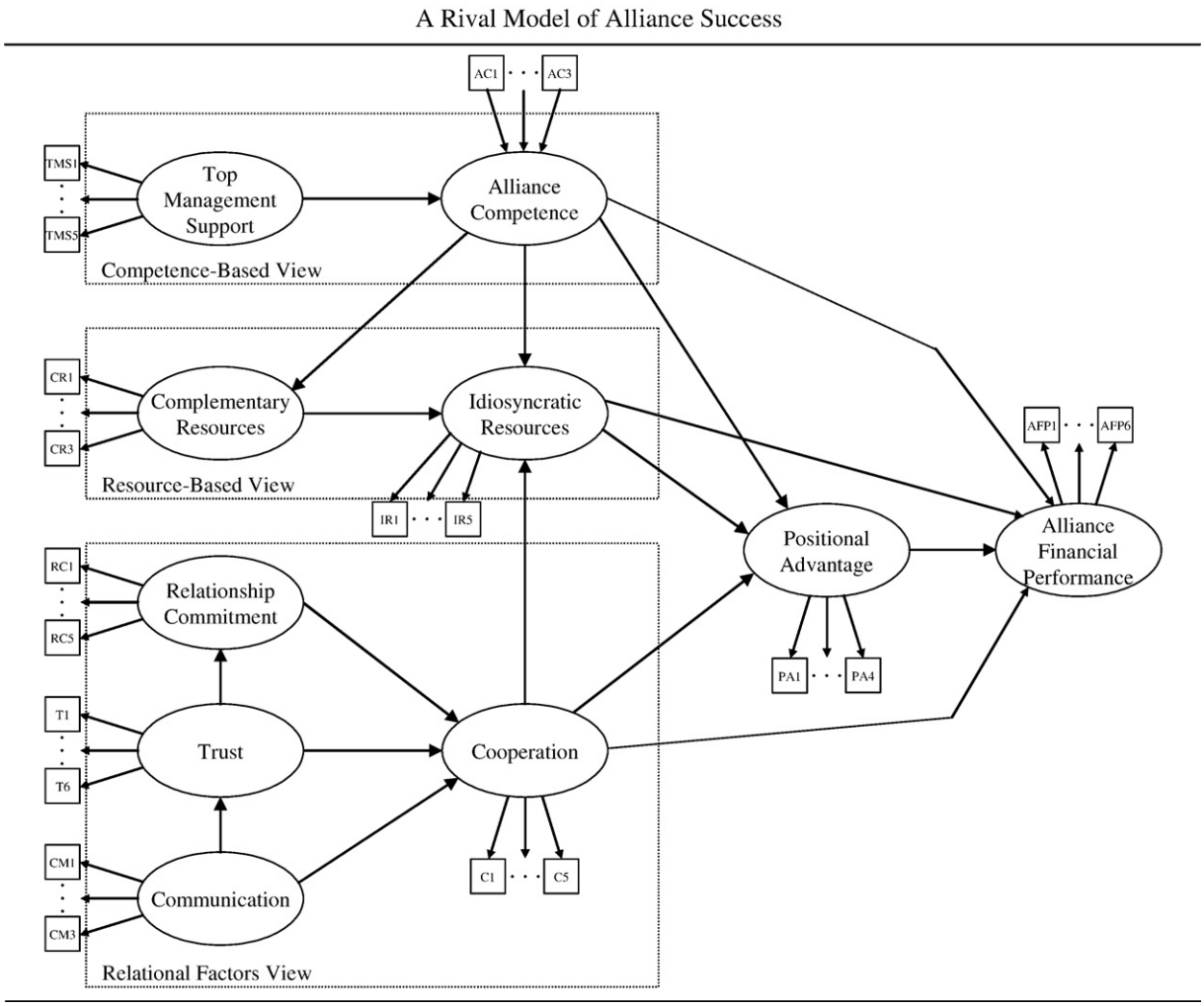

Fig. 2. A rival model of alliance success.

from Lambe et al. (2002). Top management support is a five item, reflective scale, and the alliance competence scale is formative in nature and consists of one item for each of the three facets (alliance experience-based knowledge, alliance manager development capability, and partner identification propensity).

The measures of the resource-based view constructs are reflective scales developed by Jap (1999) and Lambe et al. (2002). The complementary resources scale consists of three items, while the idiosyncratic resources scale consists of five items. The relational factors view constructs use reflective scales developed by Morgan and Hunt (1994), with relationship commitment having five items, trust having six items, and communication having three items. Cooperation uses a five item reflective scale developed by Cannon and Perreault (1999). The resource-advantage view constructs of positional advantage and alliance financial performance use reflective scales developed by Jap (1999) and Lambe et al. (2002), respectively. The positional advantage scale consists of four items, and alliance financial performance scale has six items.

5.2. Sample

A major problem hindering alliance research efforts has been finding qualified respondents (Lambe et al., 2002). Qualified respondents should be either alliance managers or have significant responsibilities related to firm alliances. The Association of Strategic Alliance Professionals (ASAP) agreed to assist us by supplying contact information and encouraging its members to participate in our study. ASAP members represent excellent sources of information for alliance research because the association's primary purpose is to advance the state of the art in alliance formation and management. Because most of its members serve as vice-presidents of alliances, alliance managers, or business development managers, they are deeply involved in alliances. A disadvantage of ASAP is that the size of the association (230 members) implied that our analysis sample, though of high quality, would be small.

Each of the 230 members of ASAP was sent a questionnaire and a contact letter that described the study's purpose, emphasized ASAP sponsorship, and asked respondents to answer the questions based on the alliance for which they were most familiar. Approximately four weeks later, follow up letters and questionnaires were sent to non-respondents. Forty-seven usable questionnaires were returned, for a 22% response rate. The mean age of the alliances included in the study is 2.9 years (SD = 2.5). The mean sales of the respondents' companies is 8.8 billion dollars (SD = 1.8 billion dollars). As expected, each respondent's alliance knowledge is high (mean of a 6.3 on a 7-point scale).[4] A comparison of early versus late respondents suggests a lack of nonresponse bias (Armstrong & Overton, 1977).

For PLS, the sample size should be at least equal to the larger of: (1) ten times the number of items in the scale with the largest number

[4] Following Lambe et al. (2002), respondents rated themselves on a 7-point scale, where 1 was *not very knowledgeable* and 7 was *very knowledgeable* about the alliance.

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of formative indicators or (2) ten times the largest number of structural paths directed at any one model's constructs (Chin, 1998). Because there are three items in the formative scale measuring alliance competence, and there are, at most, three paths directed at any one construct, the minimum allowable sample size for this study is 30. Therefore, the sample size (n = 46) is adequate.

To test for common method variance, we conducted the Harman one-factor test (Podsakoff & Organ, 1986). In this test, all the items are entered together into a single factor analysis, and the results of the unrotated factor solution are examined. Evidence of substantial common method variance exists when either a single factor emerges or one general factor accounts for most of the covariance in the independent and criterion variables. All 45 items were included in a principle components factor analysis. This analysis produced 10 factors, with the first factor explaining 38% of the variance. Moreover, no general factor was apparent in the unrotated factor solution (Scott & Bruce, 1994).

6. Analysis and results

6.1. Measurement model

In PLS, the measurement model is tested within the imposed structure of the hypothesized model. Reliability, convergent validity, and discriminant validity of the measures are assessed using approaches developed by Arnett, Laverie, and Meiers (2003), Diamantopoulos and Winklhofer (2001), Jarvis, MacKenzie, and Podsakoff (2003), Fornell, Tellis, and Zinkhan (1982), and Fornell and Larcker (1981). Table 1 shows the means, standard deviations, and intercorrelations among the variables. We note that all means are greater than two and less than six. Thus, the means are not skewed toward either end of the scales. Indeed, the mean of alliance financial performance (4.16) is near the mid-point of the scale. Also, all standard deviations are greater than .89, indicating significant variance to be explained.

Table 2 shows the measurement model results. The reliabilities of all reflective measures are above the .70 level set by Nunnally (1978) (all values are ≥ .88). Therefore, the scales demonstrate internal reliability. The average variance extracted for each reflectively measured construct is high (all values are ≥ .65). The high average variance extracted coupled with the strengths and significances of the parameter estimates of each of the reflective scales provide evidence of convergent validity (Cannon & Perreault, 1999). The Fornell and Larcker (1981) method is used to assess the discriminant validity of the constructs. The results show that the variance shared between each construct and its measures is greater than the variance shared between the construct and other constructs in the model, which provides evidence of discriminant validity.

Table 3 shows the measurement properties of the alliance competence formative scale, which is evaluated using the guidelines suggested by Arnett, Laverie, and Meiers (2003).[5] The results indicate that (1) the formative indicators for the construct have low standard errors relative to their measurement paths, (2) all tolerance statistics

Table 1
Construct means, standard deviations, and intercorrelations.

	Mean[a]	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1. AFP	4.16	1.57	1.00									
2. PA	5.16	1.21	.64	1.00								
3. AC	4.77	1.13	.40	.41	1.00							
4. IR	4.93	1.18	.42	.60	.29	1.00						
5. COOP	5.82	1.00	.43	.54	.36	.53	1.00					
6. TMS	5.25	1.29	.59	.62	.53	.44	.47	1.00				
7. CR	5.82	1.00	.33	.56	.32	.47	.29	.36	1.00			
8. RC	5.37	.99	.49	.68	.34	.61	.75	.74	.39	1.00		
9. TRUST	5.83	.90	.30	.31	.35	.33	.58	.42	.31	.47	1.00	
10. COMM	5.49	1.06	.37	.44	.39	.29	.67	.58	.18	.74	.53	1.00

SD = standard deviation, AFP = alliance financial performance, PA = positional advantage, AC = alliance competence, IR = idiosyncratic resources, COOP = cooperation, TMS = top management support, CR = complementary resources, RC = relationship commitment, TRUST = trust, COMM = communication.
Note: All correlations are significant at the $p<.01$ level.
[a] Means and standard deviations are calculated using the average of each person's responses for each construct.

Table 2
Properties of measurement model.

Constructs/indicators	Standard loading[a]	Reliability	Average (estimate)
Alliance financial performance		.96	.81
AF1	.96		
AF2	.80		
AF3	.94		
AF4	.88		
AF5	.86		
AF6	.95		
Positional advantage		.88	.65
PA1	.78		
PA2	.76		
PA3	.86		
PA4	.82		
Alliance competence[b]	–	–	
Idiosyncratic resources		.92	.68
IR1	.85		
IR2	.83		
IR3	.82		
IR4	.88		
IR5	.75		
Cooperation		.91	.68
C1	.90		
C2	.94		
C3	.91		
C4	.60		
C5	.72		
Top management support		.91	.66
TMS1	.82		
TMS2	.80		
TMS3	.71		
TMS4	.88		
TMS5	.84		
Complementary resources		.89	.72
CR1	.84		
CR2	.83		
CR3	.88		
Relationship commitment		.93	.73
RC1	.90		
RC2	.94		
RC3	.77		
RC4	.87		
RC5	.77		
Trust		.94	.72
T1	.88		
T2	.93		
T3	.94		
T4	.80		
T5	.83		
T6	.69		
Communication		.90	.76
CM1	.92		
CM2	.90		
CM3	.79		

[a] All loadings are significant at the $p<.01$ level. Significance levels are calculated using standard errors estimated using a jackknife procedure. All loadings are standardized.
[b] Alliance competence is a formative construct and, therefore, measures of reliability and variance extracted are not appropriate (Arnett et al., 2003; Diamantopoulos and Winklhofer, 2001).

[5] In PLS analysis, measurement path coefficients for formative scales are estimated using OLS regression, where the indicators are treated as independent variables. The estimates are calculated using an iterative procedure designed to maximize the predictive ability of the formative scale in the structural model.

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Table 3
Measurement characteristics of the formative alliance competence scale.

Formative		
Indicator	Loading (SE)[a]	Tolerance
AC1	.74 (.08)	0.33
AC2	.72 (.08)	0.32
AC3	.82 (.04)	0.13

All loadings are standardized.
[a] Standard errors are estimated using a jackknife procedure.

(which measure the amount of multicollinearity among the indicators) are below the .50 level recommended by Sellin (1989), and (3) all constructs demonstrate external validity (i.e., they relate, as the theory suggests, to other constructs in the model). Collectively, the results suggest that the measures demonstrate acceptable measurement properties. Therefore, it is appropriate to interpret the structural model.

6.2. The hypothesized, integrative model

In PLS analysis, the variance explained is an important criterion for model assessment (Barclay 1991). Table 4 shows the hypothesized, integrative model accounts for 41% of the variance in alliance financial performance (the ultimate dependent construct in the model), 46% of the variance in positional advantage, 28% of alliance competence, 39% of idiosyncratic resources, 63% of cooperation, 10% of complementary resources, 22% of relationship commitment, and 29% of trust. Therefore, there is evidence that the structural model is appropriate (i.e., a significant portion of the variance in the endogenous constructs is explained by the model).

The Stone–Geisser test of predictive relevance provides an additional assessment of model fit in PLS analysis (Geisser, 1975; Stone, 1974). The procedure (1) omits or "blindfolds" one case at a time, (2) re-estimates the model parameters based on the remaining cases, and (3) predicts the omitted case values on the basis of the remaining parameters (Sellin, 1989). The procedure results in the Q^2 test statistic, which is a jackknife analogue of R^2: "Q^2 represents a measure of how well observed values are reconstructed by the model and its parameter estimates" (Chin, 1998, p. 318). If $Q^2 > 0$, the model is considered to have predictive relevance, with higher values indicating more relevance. If $Q^2 \leq 0$, the model lacks predictive relevance.[6] High predictive relevance implies that the fit of the solution is stable across all observations.

The Q^2 values for the integrative model are all positive (.37 for alliance financial performance, .36 for positional advantage, .22 for alliance competence, .26 for idiosyncratic resources, .48 for cooperation, .03 for complementary resources, .15 for relationship commitment, and .20 for trust), which supports the predictive relevance of the model. Also, 12 of the 14 hypothesized paths (86%) are supported. Indeed, only H_7 and H_9, which hypothesize paths from communication to cooperation and alliance competence to idiosyncratic resources, are not supported. Therefore, based on variance explained, the Q^2 statistics, and the percentage of hypotheses supported, the model fits the data well.

[6] Note: Q^2 refers to a statistic that can be negative. In the simple multiple regression case,

$$Q^2 = 1 - \frac{\Sigma_n \left(Y_i - \Sigma_k X_{ki} b_{k(i)}\right)^2}{\Sigma_n \left(Y_i - Y_{(i)}\right)^2},$$

where $i = 1, 2, \ldots, n$ cases, k = the number of regressors, $b_{k(i)}$ is the set of regression coefficients obtained when the ith case is omitted, $Y_{(i)}$ denotes the mean of the dependent variable computed without the ith case.

6.3. The sub-models

Table 4 also provides the results for each of the three sub-models. First, the resource-based sub-model accounts for 41% of the variance in alliance financial performance, 36% of the variance in positional advantage, and 22% of the variance in idiosyncratic resources. The Q^2 values for all variables are positive, supporting the predictive relevance of the model. Also, all of the hypothesized paths are supported. Second, the competence-based sub-model accounts for 41% of the variance in alliance financial performance, 18% of positional advantage, and 31% of alliance competence. The Q^2 values for all variables are positive, and all the hypothesized paths are supported. Third, the relational factors sub-model accounts for 41% of the variance in alliance financial performance, 30% of positional advantage, 64% of cooperation, 22% of relationship commitment, and 29% of trust. The Q^2 values for the analysis are all positive, and six of the seven (86%) hypothesized paths are supported.

Recall that Hypothesis 15 posits that the integrative model will explain more variance in positional advantage than any of the three sub-models taken alone. Whereas the integrative model explains 46% of the variance in positional advantage, the resource-based, competence-based, and relational factors-based sub-models explain 36%, 18%, and 30%, respectively. Therefore, H_{15} is supported.

Because our study incorporates all the variables in the Lambe et al. (2002) model, we can also replicate their model. The results of the replication are reported in Table 4. The results show support for all the paths in their model, with the exception of the path from alliance competence to idiosyncratic resources, which, as it is in our integrative model, is not significant. Also, though the paths from alliance competence and idiosyncratic resources to alliance financial performance are both significant in the Lambe et al. model, the R^2 for alliance financial performance decreases from .41 in the integrative model to .28 in the Lambe et al. model. Therefore, the addition of positional advantage in the integrative model increases variance explained in the key dependent variable in our study and that of Lambe et al. (2002).

6.4. The rival, integrative model

Table 4 also shows the results for the rival, integrative model. The rival model accounts for 44% of the variance in alliance financial performance, 46% of positional advantage, 29% of alliance competence, 39% of idiosyncratic resources, 63% of cooperation, 8% of complementary resources, 22% of relationship commitment, and 29% of trust. The Q^2 values are all positive, supporting the predictive relevance of the model. Twelve of the seventeen hypothesized paths (71%) are supported. However, and most importantly, none of the three added paths that distinguish the rival model from the hypothesized model is supported. That is, the direct paths from alliance competence, idiosyncratic resources, and cooperation to alliance financial performance are not supported. Therefore, the integrative model performs better than the rival model.

7. Discussion

7.1. Implications

The findings of this study must be considered tentative because of the small sample employed, the possibility of nonresponse bias, and the possibility that our sample may not be representative of the more general population of alliances. Nonetheless, the results do provide provisional, preliminary support for our theoretical model of alliance success. While further replication is certainly required for definitive conclusions, our results provide tentative guidance for managers of firms whose strategies involve seeking and developing alliances.

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Table 4
PLS analysis results — structural models.

Construct/path	Integrative model		Resource-based sub-model		Competence-based sub-model		Relational factors sub-model		Lambe et al. sub-model		Rival integrative model	
	Estimate	R^2 (Q^2)	Estimate	R^2 (Q^2)	Estimate	R^2 (Q^2)	Estimate	R^2 (Q^2)	Estimate	R^2 (Q^2)	Estimate	R^2 (Q^2)
Alliance financial performance (AFP)		.41 (.37)		.41 (.37)		.41 (.37)		.41 (.37)		.28 (.19)		.44 (.33)
Positional advantage → AFP	.64		.64		.64		.64				.50	
Alliance competence → AFP	–		–		–		–		.31		ns	
Idiosyncratic resources → AFP	–		–		–		–		.34		ns	
Cooperation → AFP	–		–		–		–		–		ns	
Positional advantage (PA)		.46 (.36)		.36 (.31)		.18 (.12)		.30 (.23)		–		.46 (.35)
Alliance competence → PA	.20		–		.43		–		–		.20	
Idiosyncratic resources → PA	.41		.60		–		–		–		.40	
Cooperation → PA	.25		–		–		.55		–		.25	
Alliance competence (AC)		.28 (.22)		–		.31 (.24)		–		.28 (.21)		.29 (.22)
Top management support → AC	.53		–		.55		–		.53		.54	
Idiosyncratic resources (IR)		.39 (.26)		.22 (.15)		–		–		.26 (.16)		.39 (.26)
Alliance competence → IR	ns		–		–		–		ns		ns	
Complementary resources → IR	.34		.47		–		–		.42		.33	
Cooperation → IR	.42		–		–		–		–		.40	
Cooperation (Coop)		.63 (.48)		–		–		.64 (.48)		–		.63 (.48)
Relationship commitment → Coop	.50		–		–		.50		–		.50	
Trust → Coop	.26		–		–		.26		–		.26	
Communication → Coop	ns		–		–		ns		–		ns	
Complementary resources (CR)		.10 (.03)		–		–		–		.09 (.02)		.08 (.02)
Alliance competence → CR	.32		–		–		–		.30		.29	
Relationship commitment (RC)		.22 (.15)		–		–		.22 (.15)		–		.22 (.15)
Trust → RC	.47		–		–		.47		–		.47	
Trust		.29 (.20)		–		–		.29 (.20)		–		.29 (.20)
Communication → Trust	.53		–		–		.53		–		.53	

[a]All paths are significant at the $p<.01$ level, except those indicated as not significant (i.e., ns). Significant levels are calculated using standard errors estimated using a jackknife procedure. All loadings are standardized.

7.1.1. Managerial implications

Our results further explicate the roles of complementary and idiosyncratic resources. The existence of complementary resources among alliance partners is not enough to guarantee alliance success. Rather, "alliances create value primarily by combining complementary resources" (Lam, 2004, p. 58) to create new, idiosyncratic resources. These idiosyncratic resources are what allows firms to achieve positional advantages in the marketplace. For example, eBay and Google are combining resources in order to achieve an advantage in the "click-to-call" advertising market (Hof, 2006). The combined resources will incorporate Google's advertising expertise and eBay's Skype Net-phone business creating a competitive advantage in the marketplace and additional revenue opportunities. Thus, when managers are considering using alliances as a strategic option, careful consideration should be given to how the resources contributed to the alliance will be used to create new advantage-producing idiosyncratic resources.

Our results provide evidence supporting the competence-based view of alliance success. Firms that create an alliance competence combine both tacit and explicit knowledge. Therefore, a competence-based alliance advantage is likely to be sustainable over time (Kandemir, Yaprak, & Cavusgil, 2006). Several companies recognized as leaders in creating and managing successful alliances have created dedicated alliance units in order to develop and improve alliance capabilities. For example, Eli Lilly has an Office of Alliance Management (OAM) that focuses on creating alliance-derived value. The OAM nurtures an alliance competence in at least three ways: (1) the OAM captures alliance knowledge and seeks to create replicable models that can be used to guide future alliances (i.e. alliance experienced-based knowledge); (2) it develops, trains, and clearly defines the roles of Lilly managers involved in alliances (i.e. alliance manager development capability); and (3) it works with the business development function to identify and create new alliances (i.e. partner identification propensity) (Gueth, 2001). Lilly executives stress that alliances are crucial to the success of the company and are certain that the know-how (i.e. competence) of this unit has improved Lilly's alliance success rate (Dyer et al., 2001; Gueth, 2001; Lam, 2004). Therefore, consistent with our findings, companies seeking to develop and maintain advantage-producing alliances should invest in creating and maintaining an alliance competence.

Consistent with previous research (e.g. Morgan & Hunt, 1994), our results support the relational factors view that relationship characteristics can contribute directly to competitive advantage. Furthermore, cooperation contributes *indirectly* to competitive advantage through the creation of idiosyncratic resources. That is, when firms behave cooperatively, they are more likely to create new, (i.e., idiosyncratic) advantage-producing resources. Therefore, the investment that companies make in building relationships among alliance managers and other company personnel will likely have a positive return. For example, Proctor & Gamble's Pharmaceuticals (P&GP) unit views relationship development as so critical for successful alliances that they include relationship development activities as part of its alliance management plan. Both formal and informal interactions are built into meetings between alliance partners (Finn & McCamey, 2002) resulting in relationships that lead to greater cooperation and a stronger advantage in the marketplace.

Our results imply that alliance competence, idiosyncratic resources, and relationships are important independently. Alliance managers should recognize that investing in only one approach or view of alliance success may be short-sighted. That is, when alliance members develop all three types of resources, they are more likely to be successful. However, small businesses or companies that have limited resources will likely have to make at least some trade-offs when determining whether to invest in an alliance competence, relational resources, and/or idiosyncratic resources.

Because relational resources are developed over time and are based on trust, commitment, and cooperation more than capital expenditures, one may invest in relational resources in ways that require less capital investment. Because an alliance competence is more tacit and learned by doing, resource-strapped organizations may have difficulty hiring individuals with the necessary skills and background

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and/or creating alliance manager development programs. However, even the smallest organization can learn from their alliance experiences and create templates and guidelines that can be used to identify promising alliance partners. Our research suggests that creating idiosyncratic resources is critical for gaining positional advantages. Thus, resource-strapped companies should strongly consider making capital investments that will enhance their ability to combine complementary resources into new idiosyncratic resources. In summary, though small firms and other resource-strapped organizations can still develop (to a lesser degree) all three forms of resources, capital expenditures are more likely to be focused on developing idiosyncratic resources.

More generally, our research suggests how managers should consider viewing empirical research and other writings that conclude with exhortations for them to adopt particular theories or models because they imply that certain policies, programs, and procedures have been found empirically to (or are posited theoretically to) contribute significantly to financial performance. Because most writers and researchers restrict their analyses to one particular "silo" (e.g., in our research, writers restrict themselves to the competence, resource-based, or relational factors silos) managers should consider all such exhortations to be highly suspect. Indeed, "silo-based" research is the norm in academe; our approach is the exception. Therefore, our research implies that, when managers are considering which exhortations to accept or reject, they should actively look for competing theories/models and see if they can be integrated to form a more comprehensive picture of policies, programs, and procedures to follow. In short, managers should recognize the silo-based limitations of research and act accordingly.

7.1.2. Theoretical implications

No previous research tests empirically a model incorporating the resource-based, competence-based, and relational factors views of alliance success. Our results both support the hypothesis that these views are *interdependent* as well as the use of R-A theory as a basis integrating the resource-based, competence-based, and relational views of alliance success. Thus, while each view is capable of explaining a significant amount of variance in positional advantage, the integrative model explains more variance in positional advantage than any single sub-model. An important characteristic of the integrative model, therefore, is that it *both* explains additional variance in positional advantage and provides an explanation, hence a deeper understanding, of how the three views of alliance success are interdependent. In addition to supporting the use of R-A theory, our approach for developing and integrating seemingly different theoretical views may serve as a template for researchers attempting to do the same.

R-A theory takes the generic concept of "competitive advantage" and (1) distinguishes positional advantages of firms' offerings in the marketplace from the comparative advantages of firm resources that lead to such positional advantages and (2) posits that positional advantage mediates the relationship between resources and financial performance. Our results provide support for the R-A theory approach. That is, in all of the models tested in our study, alliance competence, idiosyncratic resources, and cooperation influence directly positional advantage. However, though the rival, integrative model hypothesizes direct paths from alliance competence, idiosyncratic resources, and cooperation to alliance financial performance, none is supported. Therefore, there is strong support for positional advantage as a key mediating construct which is significant for researchers seeking to establish a link between resources posited to contribute to competitive advantage and superior financial performance.

7.2. Limitations and future research

Our study has certain limitations. First, the size of the sample used in our study limits the potential generalizability of our findings. Also, there is the possibility of nonresponse bias. However, we note that the quality of the sample frame in the study suggests that the respondents are particularly appropriate for the study's purposes (i.e., they are people who have considerable responsibilities for the success of their firms' alliances and, therefore, are highly knowledgeable). Nonetheless, future tests of our model with larger sample sizes would provide evidence of its generalizability.

Third, interestingly, though most of the paths (12 of 14) are supported, neither the path from alliance competence to idiosyncratic resources nor the path from communication to cooperation is supported. One explanation for the two contrary-to-the-literature findings is that the sample in our study is comprised of many different types of alliances (e.g., buyer–seller, product development, and co-manufacturing alliances). Perhaps alliance competence plays a direct role in the creation of idiosyncratic resources only in certain kinds of alliances. Similarly, perhaps communication is an important factor in developing cooperative relationships in only certain kinds of alliances. Our results suggest that future research should investigate whether the type of alliance (e.g., buyer–supplier versus co-manufacturer) moderates the various relationships hypothesized in our model.

Fourth, our study does not examine specific types of *basic* resources that contribute to alliance success. For example, Hunt and Morgan (1995) discuss the types of resources that are accessible through relationships (i.e. financial, legal, physical, human, organizational, relational, and informational) and the propensity of these resources (and complex combinations thereof) to contribute to competitive advantage. Therefore, future research could extend our model by examining how various types and combinations of specific, basic resources influence positional advantage, and, in turn, alliance success.

Fifth, though our comprehensive model uses important constructs from the resource-based, competence-based, and the relational factors views, we were unable to include all constructs from these views that could potentially affect alliance success. Therefore, future research should investigate other factors. Potential candidates from the three views include other specific competences (e.g., competences of new product development, supply chain integration, environmental scanning), other resources (e.g., social capital, financial capital, cultural resources), and other relational factors (e.g., shared values, lack of opportunism, propensity to stay).

Finally, though alliances involve multiple firms working together, we collected data from one member of the alliance. Although our study provides valuable insights, data gathered from all firms involved in specific alliances may provide additional insights. The difficulties involved in collecting dyadic (triadic, etc.) data make the task of studying alliances a daunting one. Indeed, in our study, it would have been impossible, given the assurance of anonymity. However, given the continuing importance placed on alliances by marketing managers, future efforts may be fruitful.

In conclusion, researchers and practitioners alike recognize the strategic importance of alliances and their ability to influence firm growth and value. However, the poor success rate of alliances suggests the need for research on factors that influence alliance success. Our study advances alliance theory and practice by: (1) integrating the resource-based, competence-based, relational factors views and (2) demonstrating the importance of positional advantage as a mediating factor between alliances' higher order resources and alliance success. Our study suggests that alliance success is influenced by a combination of resources (alliance competence, idiosyncratic resources, and the cooperation that results from relational resources), which affect an alliance's positional advantage, and in turn, its success. Therefore, managers need to focus on developing each of these resources. Our results provide some guidance to alliance managers. They indicate that alliance managers should: (1) focus on developing top management support for the alliance, (2) choose alliance partners

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who have complementary resources, and (3) strive to develop cooperative relationships with alliance partners by fostering interfirm communication, trust, and relationship commitment.

Appendix A. — Measures*

I. Top management support (reflective scale, adapted from Lambe et al., 2002)

TMS1. Senior managers in both firms believe that alliances play a role in the future success of each firm.
TMS2. It is clear that senior managers in both firms want this alliance to be a success.
TMS3. I don't feel that upper managers in either firm place a great deal of significance on this alliance.**
TMS4. I feel that this alliance is strongly supported by senior managers in our firm and our partner's firm.
TMS5. We both have senior-level management commitment towards the use of alliances to achieve strategic goals.

II. Alliance competence (formative scale from Lambe et al., 2002)

AC1. Individually, we have been partners in many alliances.
AC2. We each know how to identify effective alliance managers.
AC3. We both are always looking for firms that we can partner with to jointly develop competitive advantage.

III. Complementary resources (reflective scale from Lambe et al., 2002)

CR1. We both contribute different resources to the relationship that help us achieve mutual goals.
CR2. We have complementary strengths that are useful to the relationship.
CR3. We each have separate abilities that, when combined together, enable us to achieve goals beyond our individual reach.

IV. Idiosyncratic resources (reflective scale from Lambe et al., 2002)

IR1. Together we have invested a great deal in building up our joint business.
IR2. Both of us have made a great deal of investments in this relationship.
IR3. If either company were to switch to another partner, we would lose a lot of investments made in the present relationship.
IR4. Together we have developed a lot of knowledge that is tailored to our relationship.
IR5. Both of us have created capabilities that are unique to this alliance.

V. Relationship commitment (reflective scale from Morgan and Hunt, 1994)
Both my alliance partner and I view our relationship as:

RC1. … something we are very committed to.
RC2. … very important to our firms.
RC3. … something our firms intent to maintain indefinitely.
RC4. … something our firms really care about.
RC5. … deserving our firms' maximum efforts to maintain.

VI. Trust (reflective scale from Morgan and Hunt, 1994)
In our relationship, both my alliance partner and I:

T1. … are honest and truthful.
T2. … can be counted on to do what is right.
T3. … have confidence in each other.
T4. … have high integrity.
T5. … are not reliable.**
T6. … are trustworthy.

VII. Communication (reflective scale from Morgan and Hunt, 1994)
In our relationship, my alliance partner and I:

CM1. … keep each other informed of new developments.
CM2. … provide each other with information that helps both parties.
CM3. … effectively communicate expectations for each other's performance.

VII. Cooperation (reflective scale from Cannon and Perreault, 1999)

C1. Both sides are willing to cooperate.
C2. We work together to be successful.
C3. Both my partner and I try to accommodate each other when making decisions that affect mutual outcomes.
C4. People from our organizations do not work together well. **
C5. Both my partner and I look for new opportunities to work together.

IX. Positional advantage (reflective scale from Jap, 1999)

PA1. Because of the alliance, both my partner and I have gained strategic advantages over our competitors.
PA2. The relationship has not resulted in strategic advantages.**
PA3. Because of the alliance, both my partner and I have gained benefits that enable us to compete more effectively in the marketplace.
PA4. The relationship has not resulted in strategically important outcomes.

X. Alliance financial performance (reflective scale from Lambe et al., 2002)

AFP1. We have generated a lot of profits together.
AFP2. We have increased joint profits shared between us.
AFP3. This alliance has enabled both firms to achieve greater profits than we could have without the alliance.
AFP4. Relative to our competitors, the alliance allows us to generate superior profits.
AFP5. Both firms have achieved greater profits than we could have with other potential alliance partners.
AFP6. We have achieved a high level of joint profits between us.

*All scales use 1–7 measures — strongly disagree to strongly agree.
** Denotes reversed item.

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